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COMMITTEE OF EXPERTS ON THE
TRANSPORT OF DANGEROUS GOODS

Sub-Committee of Experts on the
Transport of Dangerous Goods
(Fifteenth session,
Geneva, 29 June-10 July 1998,
agenda item 6 (a))

EXPLOSIVES (CLASS 1)

Indentation criterion for the 1.4/1.4S bordeline in the 6(c) test

Transmitted by the Expert from the Netherlands

1. During the meeting of the UN Working Group tasked with clarifying the 6(c) tests in February 1998 in Washington the issue of using aluminium witness screens for the determination of projection hazard was discussed. The Working Group reached consensus on the type of aluminium to be used (1100-0, Brinell hardness 23, tensile strength 90 MPa). There was also consensus that a kinetic energy of 8 Joule would serve as the breaking point between 1.4 and 1.4S products. No data was available on the indentation depth of the aluminium witness screens when hit by fragments with a kinetic energy of 8 Joule. It was agreed to use a similar procedure and similar fragments as used by Canada for establishing the kinetic energy for penetrating the witness screens. It was also agreed that NIOSH in the USA and TNO in the Netherlands would perform experiments to obtain the missing data. This paper presents the results obtained by the Netherlands.

2. A total of 24 shots has been performed at velocities between 119.2 and 122.7 m/s with the standard NATO fragment of 0.22 calibre and a mass of 1.1 g. This results in kinetic energies between 7.81 and 8.28 J. The average value is 7.98 J with a standard deviation of 0.19 J. The measured average indentation depth is 4.05 mm with a standard deviation of 0.12 mm.

Proposal

It is proposed to accept 4 mm indentation depth as the border line between 1.4 and 1.4S classification.